

Claims

1. A process for preparing tricyclodecanedialdehyde by hydroformylation of dicyclopentadiene by means of a CO/H₂ mixture at elevated temperature and under superatmospheric pressure in the presence of a rhodium catalyst which has not been modified by means of a ligand and is homogeneously dissolved in the hydroformylation medium, wherein the hydroformylation is carried out at a pressure of from 200 to 350 bar in at least two reaction zones, with a reaction temperature of from 80 to 120°C being set in a first reaction zone and a reaction temperature of from 120 to 150°C being set in a reaction zone following this reaction zone, with the proviso that the reaction temperature in the subsequent reaction zone is at least 5°C higher than in the preceding reaction zone.
2. The process according to claim 1, wherein the hydroformylation is carried out at a concentration of the rhodium catalyst, calculated as Rh, of from 2 to 20 ppm by weight in the hydroformylation medium.
3. The process according to claim 1 or 2, wherein the hydroformylation is carried out at a reaction temperature of from 105 to 115°C in the first reaction zone and at a reaction temperature of from 130 to 140°C in the subsequent reaction zone.
4. The process according to any of claims 1 to 3, wherein the hydroformylation is carried out in two reaction zones.
5. The process according to any of claims 1 to 4, wherein the reaction temperature in the subsequent reaction zone is at least 15°C higher than in the reaction zone preceding it.
6. A process for preparing tricyclodecanedimethanol by hydroformylation of dicyclopentadiene by means of a CO/H₂ mixture at elevated temperature and under superatmospheric pressure in the presence of a rhodium catalyst which has not been modified by means of a ligand and is homogeneously dissolved in the hydroformylation medium to form tricyclodecanedialdehyde, subsequent separation of the rhodium catalyst from the tricyclodecanedialdehyde and hydrogenation of the tricyclodecanedialdehyde by means of a gas comprising molecular hydrogen at elevated temperature and under superatmospheric pressure over a heterogeneous catalyst, wherein the hydroformylation is carried out at a pressure of from 200 to 350 bar in at least two reaction zones, with a reaction temperature of from 80 to 120°C being set in a first reaction zone and a reaction temperature of from 120 to 150°C being set in a reaction zone following this reaction zone, with the proviso that the reaction temperature in the

subsequent reaction zone is at least 5°C higher than in the preceding reaction zone.

- 5 7. A process for preparing diaminomethyltricyclodecane by hydroformylation of dicyclopentadiene by means of a CO/H₂ mixture under superatmospheric pressure and at elevated temperature in the presence of a rhodium catalyst which has not been modified by means of a ligand and is homogeneously dissolved in the hydroformylation medium, subsequent separation of the rhodium catalyst from the tricyclodecanedialdehyde and reductive amination of the
- 10 tricyclodecanedialdehyde at elevated temperature and under superatmospheric pressure over a heterogeneous catalyst in the presence of a gas comprising molecular hydrogen and ammonia, wherein the hydroformylation is carried out at a pressure of from 200 to 350 bar in at least two reaction zones, with a reaction temperature of from 80 to 120°C being set in a first reaction zone and a reaction
- 15 temperature of from 120 to 150°C being set in a reaction zone following this reaction zone, with the proviso that the reaction temperature in the subsequent reaction zone is at least 5°C higher than in the preceding reaction zone.